an analyzer in communication with said wave launcher and adapted to generate said input waveform, and to receive said reflected component of said input waveform from said wave launcher, and

a processor in communication with said analyzer and adapted to compare said input waveform with said reflected component of said input waveform to determine a characteristic of said pipeline,

wherein the wave launcher, the analyzer, and the processor operate in a fashion that is non-invasive to the pipeline.

29. (Twice Amended) A method of inspecting a characteristic of a pipeline, said method comprising,

transmitting an input waveform having a selected input energy along a longitudinal axis inside said pipeline,

receiving a reflected component of said input waveform from said pipeline, said reflected component having a characteristic reflected energy, and

comparing said input waveform with said reflected component of said input waveform to determine said characteristic of said pipeline,

wherein the transmitting, receiving, and comparing steps occur in a fashion that is non-invasive to the pipeline.

55. (Twice Amended) A method of determining a location of a point along a pipeline, said method comprising,

transmitting an input waveform having a selected input energy along a longitudinal axis inside said pipeline,

receiving a reflected component of said input waveform from said pipeline, said reflected component having a characteristic reflected energy, and

comparing said input waveform with said reflected component of said input waveform to determine said location of said point along said pipeline,

wherein the transmitting, receiving, and comparing steps occur in a fashion that is non-invasive to the pipeline.